

SAR TEST EXCLUSION

This device is excluded from SAR testing by the following justifications. The device is a hand held remote control that only uses 802.11 a/g via WiFi direct and will not connect to a wireless network. Because of this, the device has a duty factor of just over 4%, see attached plots. With this duty factor, the source based, time averaged power meets the requirements for SAR exclusion using a 5 mm test separation distance. See the table below for all powers and exclusion calculations. The formula used, see below, is from section 4.3.1 of KDB 447498.

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})]*[\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR

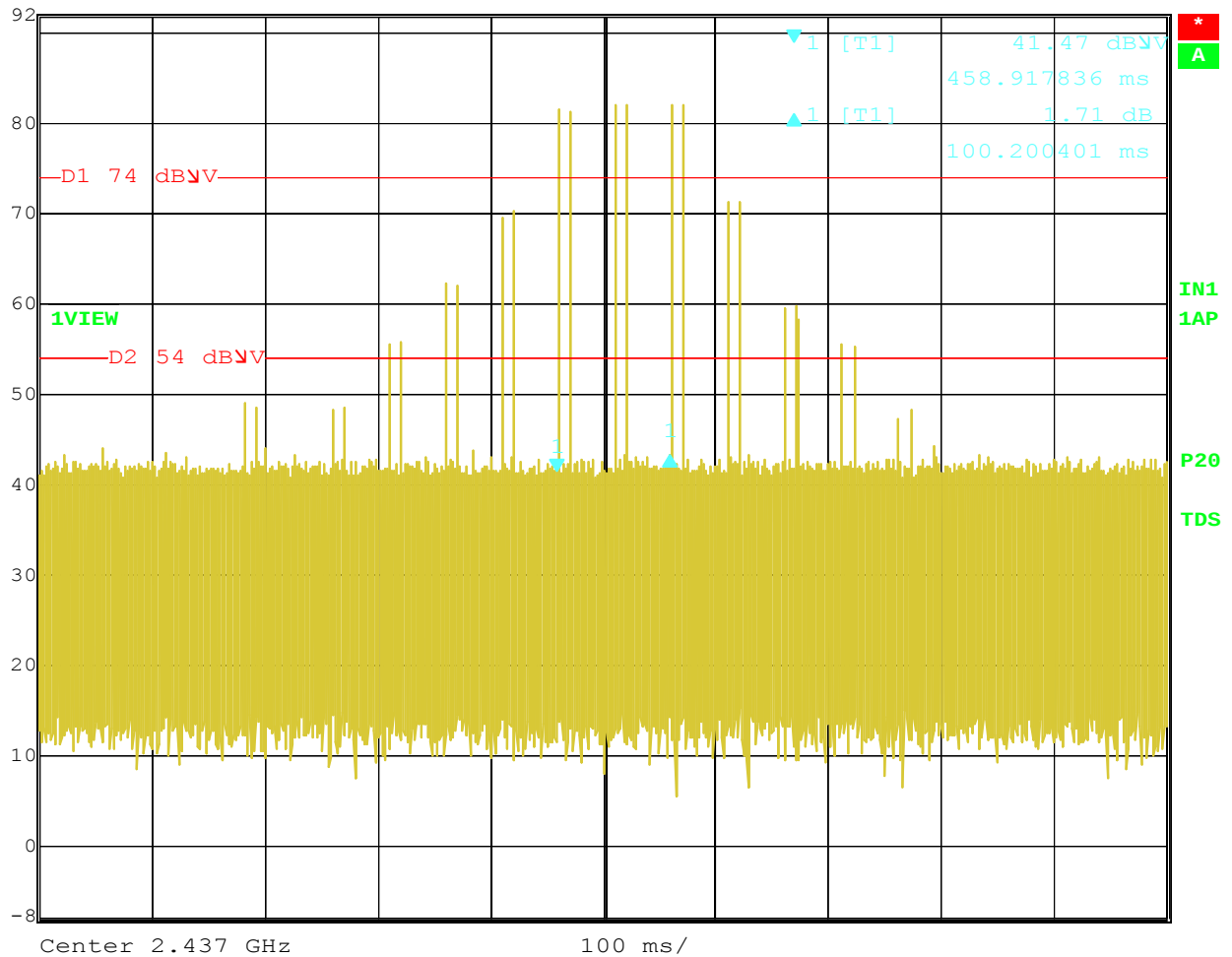
Freq (MHz)	Peak Conducted Power (dBm)	Peak Conducted Power (mW)	Power (mW) - source based, time averaged (using 5 %)	SAR test exclusion results (Limit = ≤ 3 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR)
2412	16.11	41	2.0	0.63
2437	15.84	38	1.9	0.60
2462	15.53	36	1.8	0.56
5180	11.33	14	0.7	0.31
5220	11.34	14	0.7	0.31
5240	11.34	14	0.7	0.31
5745	9.28	8	0.4	0.20
5785	5.73	4	0.2	0.09
5825	8.17	7	0.3	0.16

Equipment used:

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION CYCLE
Power meter	Boonton	4500A	1282	June 26, 2013	June 26, 2014
Power Sensor	Boonton	57318	3724	June 26, 2013	June 26, 2014



Ref Lvl 92 dBV Delta 1 [T1] 1.71 dB RBW 1 MHz RF Att 20 dB
100.200401 ms VBW 3 MHz Unit dBV
SWT 1 s

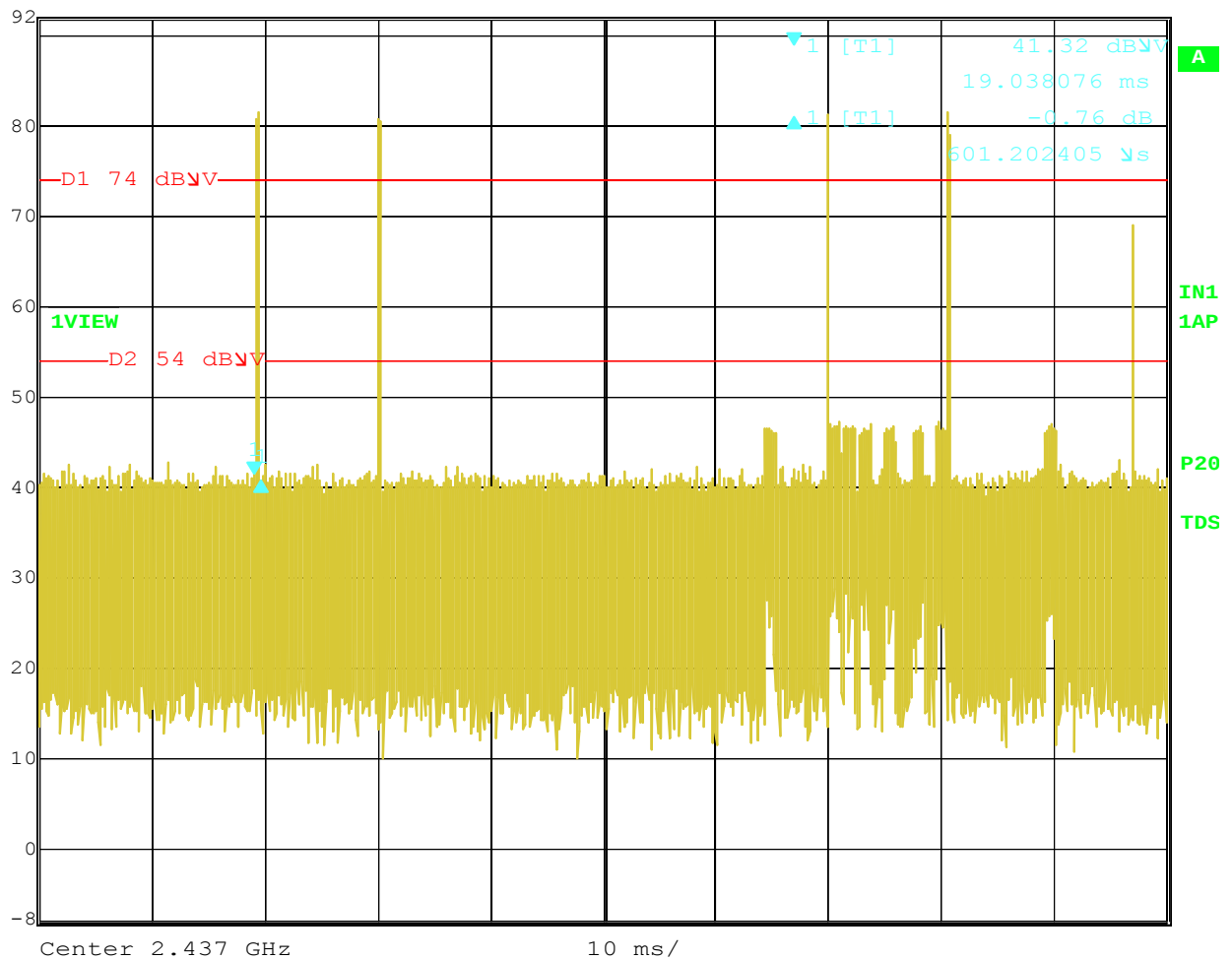


Date: 9.SEP.2013 13:09:19

Time of Plot with Roku in Pairing Mode



Delta 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl -0.76 dB VBW 3 MHz
92 dBμV 601.202405 μs SWT 100 ms Unit dBμV

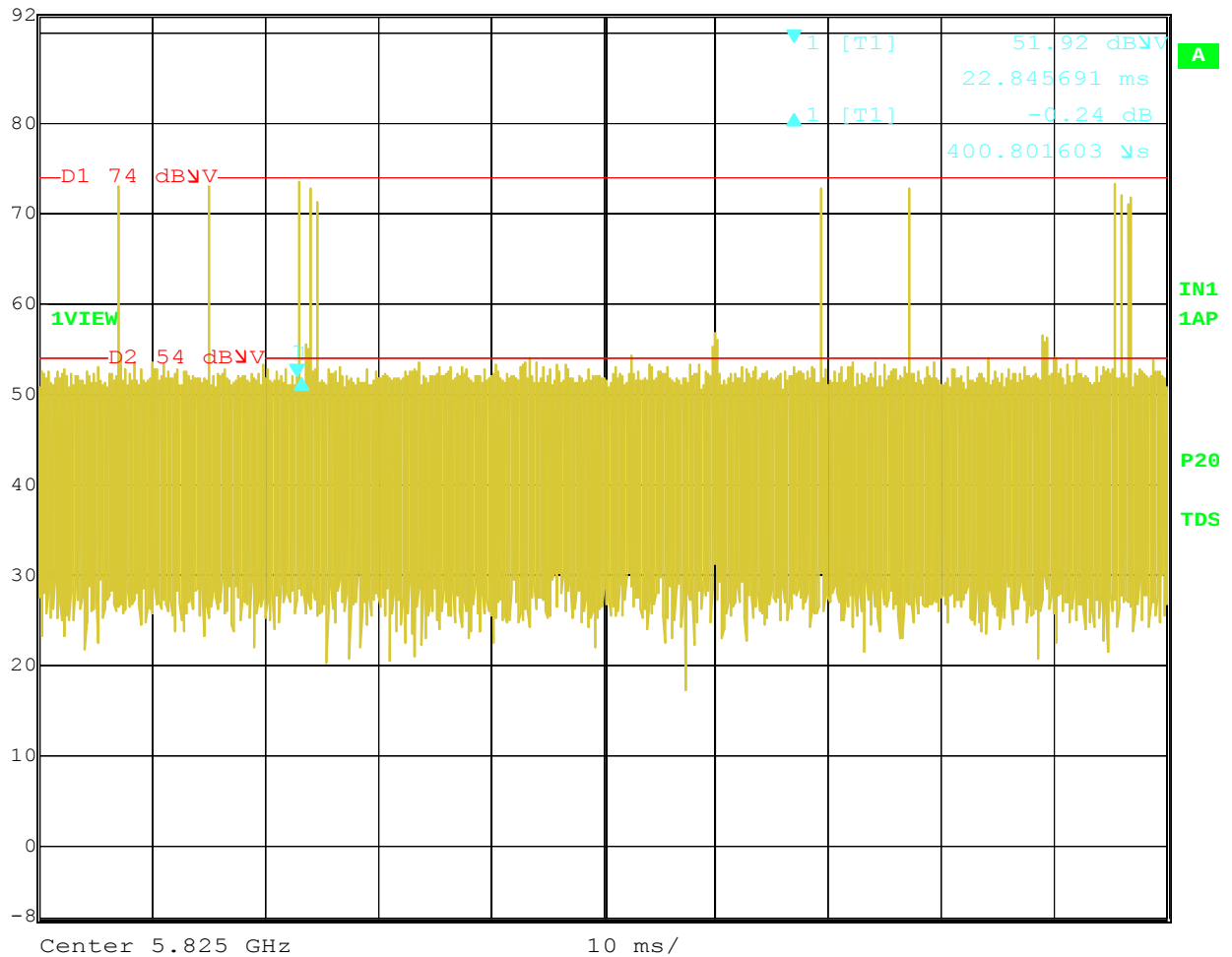


Date: 9.SEP.2013 13:10:16

Time of One Pulse in Pairing Mode



Delta 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl -0.24 dB VBW 3 MHz
92 dB μ V 400.801603 μ s SWT 100 ms Unit dB μ V

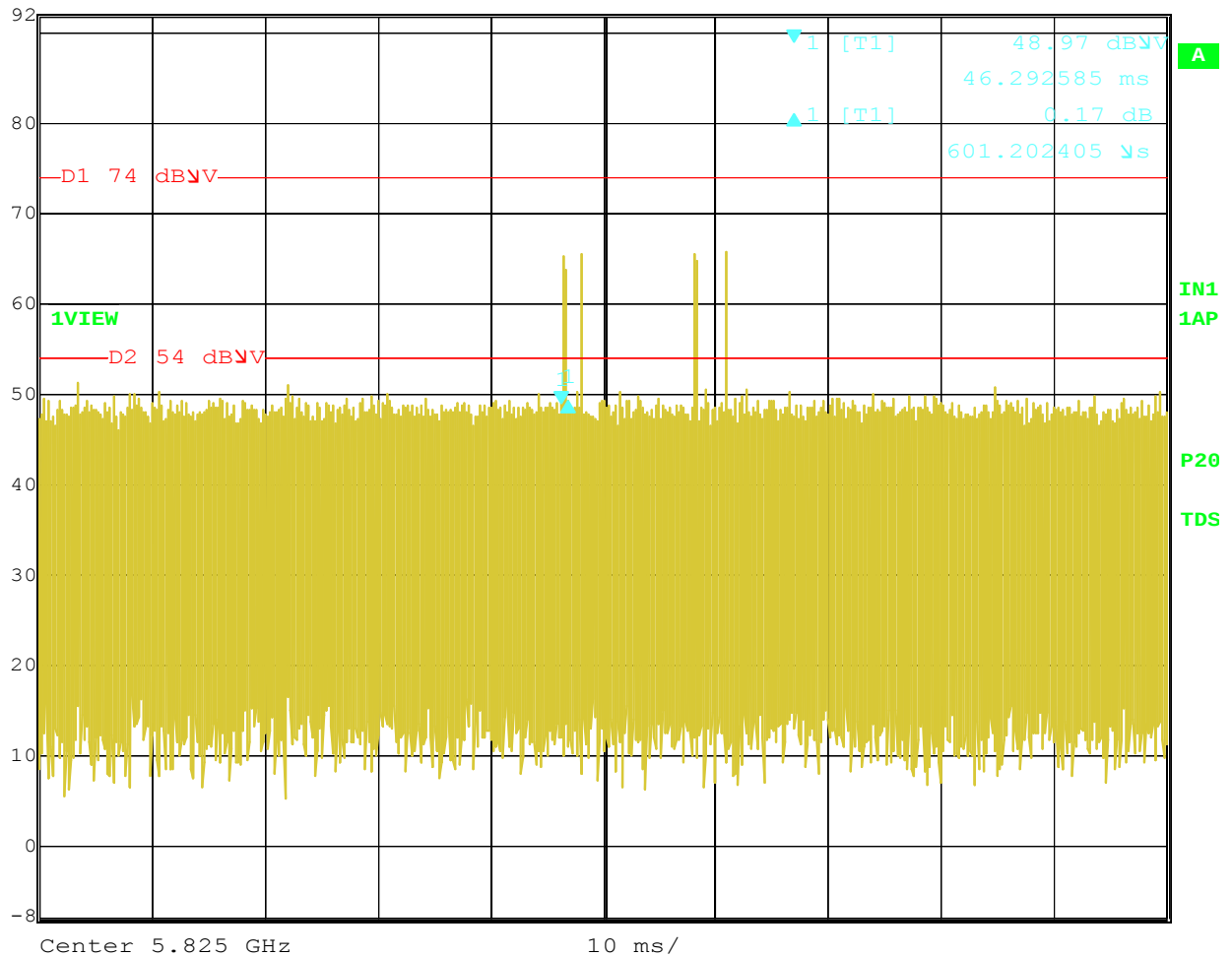


Date: 9.SEP.2013 13:16:56

Actual Operation of the Roku when the Pause / Play button was hit continuously.



Delta 1 [T1] RBW 1 MHz RF Att 20 dB
Ref Lvl 0.17 dB VBW 3 MHz
92 dBμV 601.202405 μs SWT 100 ms Unit dBμV

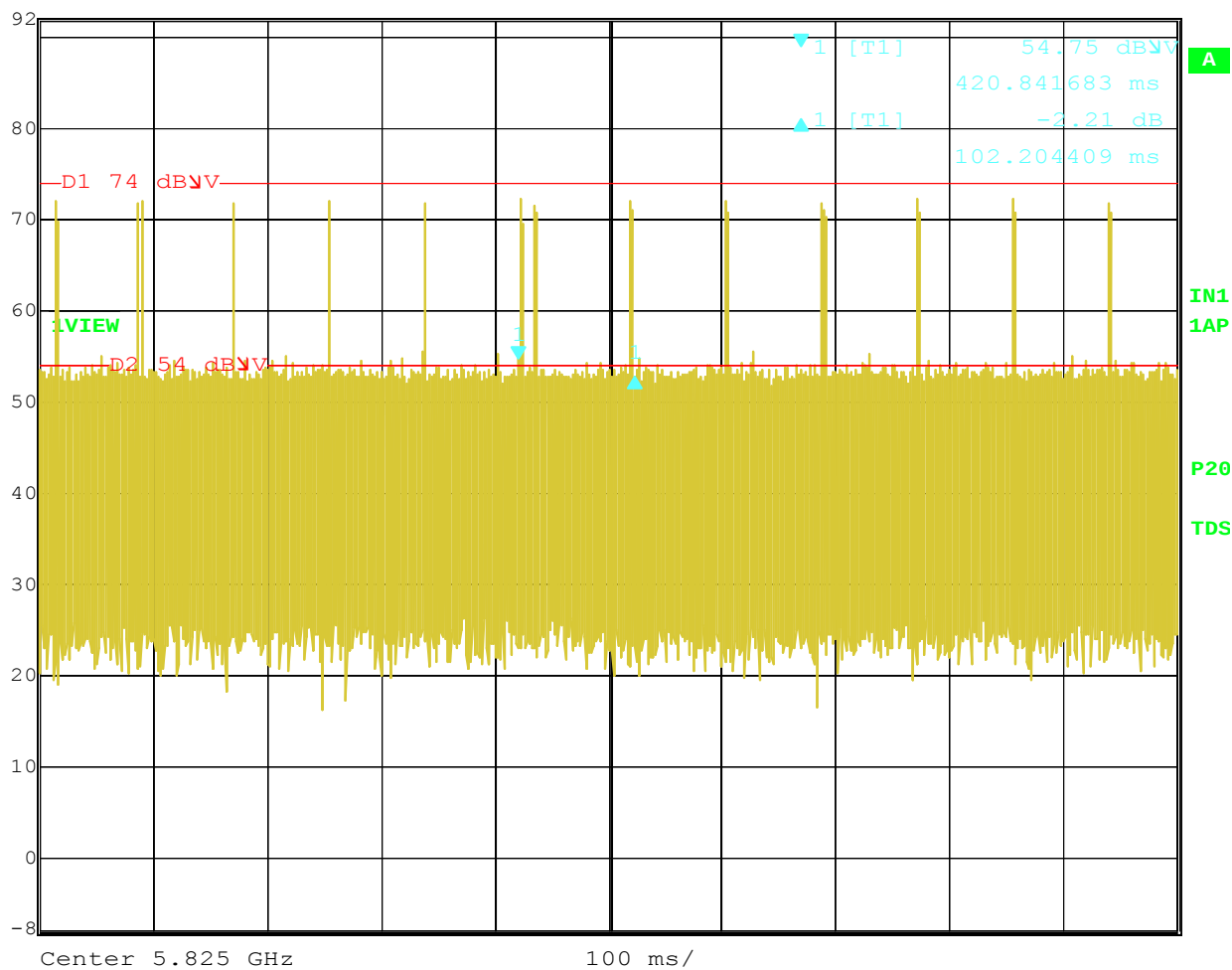


Date: 9.SEP.2013 13:28:22

Actual Operation of the Roku when the Fast Forward button was hit continuously. – 100 mS Scale



Ref Lvl 92 dBV Delta 1 [T1] -2.21 dB RBW 1 MHz RF Att 20 dB
Unit dBV



Date: 9.SEP.2013 13:13:46

Actual Operation of the Roku when the Fast Forward button was hit continuously. – 1 Second Scale